Hepatitis C

(Previously known as Non-A Non-B Hepatitis, HCV Infection)

December 2003

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Hepatitis C is caused by an RNA virus (in the *Flaviviridae* family). Multiple hepatitis C virus (HCV) genotypes exist, with type 1 being most common in the United States.

B. Clinical Description and Laboratory Diagnosis

Hepatitis C is a disease with varying rates of progression. In general, its course is slowly progressive. For people who are recently infected, only about 20% will experience any related acute symptoms. Therefore, it is uncommon for people to be diagnosed with HCV infection in the acute stage. About 15–25% of HCV-infected individuals recover spontaneously (reasons for this are still unknown). The remainder develops chronic infection.

Most people are asymptomatic during the first decade or two of chronic hepatitis C. Some patients will experience a range of symptoms including fatigue, headaches, joint aches, muscle aches, nausea, jaundice, loss of appetite, and/or abdominal pain. Of those chronically infected, about 10–20% may eventually develop cirrhosis or cancer of the liver. Cirrhosis can lead to liver failure in some people and predispose to the development of liver cancer. Factors related to more serious clinical outcomes include: drinking alcohol; coinfection with hepatitis A, hepatitis B or HIV; and medications or food supplements that harm the liver.

Laboratory diagnosis is based on identification of viral nucleic acids with reverse transcriptase polymerase chain reaction (RT-PCR), or antiviral antibodies using enzyme linked immunoassay (EIA), or recombinant immunoblot assay (RIBA).

C. Reservoirs

Infected humans are the only known source of this disease.

D. Modes of Transmission

Hepatitis C is a bloodborne pathogen, and is predominantly spread via percutaneous exposure to contaminated blood or blood products. Currently, the most prevalent mode of transmission is sharing needles or syringes to inject drugs. Blood transfusions pose an extremely limited risk now, but for those patients who received a blood transfusion prior to June 1992, the risk was approximately 1 in 200 transfused units. Sexual transmission of hepatitis C does occur but is not common. Other potential risks for transmission include long-term hemodialysis, sharing straws for intranasal cocaine use, vertical (mother-to-infant) transmission, occupational blood exposure, and tattooing or body piercing with non-sterilized equipment. Hepatitis C is not spread via casual contact, kissing, sneezing, hugging, sharing glasses or utensils, or breast milk.

E. Incubation Period

The incubation period for hepatitis C ranges from 2 weeks to 6 months, with an average incubation period of 6 to 7 weeks.

F. Infectious Period

Infectiousness with HCV is variable; anyone with a positive test for HCV antibody should be considered infectious. The virus can usually be detected in an infected person's blood within 1 to 3 weeks after the initial

exposure. The degree of correlation between quantity of circulating virus and infectiousness is not clearly established.

G. Epidemiology

Hepatitis C has a worldwide distribution. In the United States an estimated 4,000,000 people are infected with HCV. It is thought that there are currently about 30,000 new cases of hepatitis C infection each year. HCV infection occurs among persons of all ages, with the highest incidence of acute hepatitis C (new cases) occurring among persons aged 20 to 39 years. Prevalence is highest among groups with specific risk factors, especially injection drug users, patients with hemophilia or on long-term hemodialysis, prisoners, and people who received blood or organ products prior to June 1992. The risk of occupational exposure for healthcare workers has been estimated to be 1.8% among hollow-bore needlestick exposures to HCV-infected blood. Perinatal transmission is estimated as being about 5%, although if the mother is coinfected with HIV, the risk may be increased to approximately 15–25%.

There has been a sharp increase in reporting of HCV infection in New Jersey recently. Most of these newly reported cases are not people with new (acute) disease, but those with chronic infection. There is a large population of undiagnosed people who were infected in the past but only recently reported.

2) REPORTING CRITERIA AND LABORATORY TESTING SERVICES

A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

Note: Only **newly diagnosed** cases of hepatitis C are required to be reported in New Jersey.

CASE CLASSIFICATION

A. CONFIRMED

- An enzyme immunoassay **(EIA)***** or enzyme-linked immunosorbent assay (ELISA) positive for anti-HCV (hepatitis C virus) confirmed with a positive recombinant immunoblot assay (RIBA), **OR**
- An enzyme immunoassay (EIA) or enzyme-linked immunosorbent assay (ELISA) positive for anti-HCV (hepatitis C virus) confirmed with HCV RNA positive by qualitative HCV reverse transcriptase polymerase chain reaction (RT-PCR), **OR**
- Elevated serum alanine aminotransferase (ALT) levels with anti-HCV positive (EIA or ELISA) combined with negative IgM anti-HBc (if done) or negative HbsAg and negative IgM anti-HAV.

*****(EIA) if positive result of this test has signal to cut off ratio (S/Co) equal to or greater than 3.8, test is considered confirmatory.**

B. PROBABLE
Not used.

C. POSSIBLE
Not used.

Note: See Section 3 C below for information on how to report a case.

B. Laboratory Testing Services Available

The Public Health and Environmental Laboratories NJDHSS do not provide routine HCV antibody testing for the general public. Testing is generally conducted through hospitals and commercial clinical laboratories.

3) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To provide information to HCV-infected persons on how to prevent exposing others.
- To identify HCV-infected patients to ensure that they are educated on the need for medical evaluation, how to reduce disease progression, and to provide referrals to medical or support services.
- To determine the prevalence of HCV in specific populations and geographic locations to better inform HCV prevention and service activities.

B. Laboratory and Healthcare Provider Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that laboratories and health care providers must report (by telephone, confidential fax, over the Internet using the Communicable Disease Reporting System [CDRS] or in writing) all cases of hepatitis C to the NJDHSS Infectious and Zoonotic Diseases Program (IZDP) (phone 609.588.3121, fax 609.588.3894).

Mailing address:

New Jersey Department of Health and Senior Services
Division of Epidemiology, Environmental and Occupational Health
Infectious and Zoonotic Disease Program
P.O. Box 369
Trenton, NJ 08625-0369

Note: If a healthcare provider is reporting, ask him or her to inform the patient that someone from the local department of health will be contacting them for follow-up.

C. Local Departments of Health Reporting and Follow-Up Responsibilities

1. **Reporting Requirements**
The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that each local health officer must investigate the occurrence of any case of hepatitis C, as defined by the reporting criteria in Section 2 A above. Current requirements are that cases received by a local health department be reported to the NJDHSS IZDP using the Hepatitis C Reporting Form. A report may also be filed electronically over the Internet using the confidential and secure Communicable Disease Reporting System (CDRS). Most hepatitis C reports will go directly to NJDHSS from labs/health care providers, but some may continue to go to the local health departments. NJDHSS will enter into CDRS demographic data on reports received by NJDHSS, but it will be the responsibility of the local health department to finish the investigation within one month of receipt of the initial data.

2. **Case Investigation**
   a. It is the health officer's responsibility to investigate the case by interviewing the patient and others (such as the diagnosing healthcare provider) who may be able to provide the pertinent information, and to complete a Hepatitis C Reporting Form. When reporting electronically, enter collected clinical

information into the "Comments" section. Much of the information required on the form can be obtained from the patient's healthcare provider or the medical record.

b. Use the following guidelines to assist in completing a case report:
   1) Begin the investigation by contacting the diagnosing healthcare provider to verify the diagnosis. This will ensure that the healthcare provider has an opportunity to provide the test results to the case before the local health officer contacts him/her.
   2) If the health care provider cannot be reached, leave a message indicating that the local health department will be contacting the case-patient and the case-patient should be informed of the diagnosis or test results. A minimum of 1 week should be allowed for the healthcare provider to get in touch with the patient. If the report came from a laboratory and the healthcare provider is not known, contact the laboratory (before contacting the case-patient) in order to identify which specific tests were used for the diagnosis and physician name prior to contacting the patient.
   3) Be sure to record accurately the date of diagnosis, whether this is a new diagnosis, what related lab work was performed and demographic information. If possible, document when the person may have been infected (*e.g.,* indicate if the original exposure occurred recently or years ago).
   4) The confirmatory tests are PCR for viral RNA, RIBA tests and **EIA with signal to cutoff (S/Co) value equal to or greater than 3.8**. If the laboratory test information comes from the medical provider and hard copy of the test results are not available, indicate in the "Comments" section at the end of the case report that lab results were provided or confirmed by the case's healthcare provider.
   5) If information indicates possibility of acute HCV infection (acute illness with discrete onset of symptoms with jaundice or elevated serum aminotransferase levels) pay special attention to possible risk factors (tattoo, unprotected sex, i/v drug use) in last 6 months. Ideally this information should be obtained on all cases.
   6) Quantitative PCRs (QN PCR) can usually be assumed to be follow-up tests for patients chronically infected with HCV. However, the LHD may choose to investigate QN PCRs, which have been ordered by known liver specialists, as these results can also indicate diagnosis of new cases.
   7) Only contact the patient for follow-up if there is a positive EIA and/or supplementary test. If an initial EIA is shown to be false-positive via negative supplementary testing, do not contact the case-patient.
   8) Reassure the patient that all information is kept strictly confidential. For all of the risk-related questions on the report form, it is essential that the investigator not assume the cases' risk. Get the information concretely from the individuals, their medical provider(s) or indicate that the risk is unknown for that case. Other than obtaining the information (where possible) and providing related health education, the local health department does not have further responsibility in relation to this information.
   9) Educate the patient about preventing transmission and ways to protect her/his liver (role of alcohol). Encourage him/her to speak to any people who may have been exposed to his/her blood since the time they are estimated to have been exposed, infected or seroconverted.
   10) Inform patient about role of sexual behavior and drug use in transmission of hepatitis C.
   11) If there have been several attempts to obtain patient information (*e.g.,* the patient or healthcare provider does not return calls or does not respond to a letter, or the patient refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as possible. Please note on the form the reason why it could not be filled out completely. **If CDRS is used to report, enter this collected information into the "Comments" section.**

After completing the case report form, it should be mailed (in an envelope marked "Confidential") to the NJDHSS Infectious and Zoonotic Diseases Program or the report can be filed electronically over the Internet using the confidential and secure CDRS. The mailing address is:

New Jersey Department of Health and Senior Services
Division of Epidemiology, Environmental and Occupational Health
Infectious and Zoonotic Disease Program
P.O. Box 369
Trenton, NJ 08625-0369

c. Implementation of disease control measures is an integral part of case investigation. It is the local health officer's responsibility to understand, and, if necessary, institute the control guidelines listed below in Section 4, "Controlling Further Spread."
d. If you have further questions related to hepatitis C, please contact IZDP at (609) 588-7500.

4) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (N.J.A.C. 8:57)

Minimum Period of Isolation of Patient
No restrictions except for exclusion from organ and blood donation and counseling to modify activities in order to prevent transmission.

Note: Sexual transmission of hepatitis C does occur, but it does not appear to be efficient. Although not currently required, the NJDHSS also recommends that cases be advised against semen or egg donation.

Minimum Period of Quarantine of Contacts
Personal surveillance for high-risk contacts.

Note: Personal surveillance is defined as the practice of close medical or other supervision of contacts without restricting their movements in order to promote recognition of infection or illness.

B. Protection of Contacts of a Case

Standard precautions for cases are recommended to prevent exposing others to blood and body fluids. Immunoglobulin prophylaxis is not effective and is not recommended for contacts of HCV-infected individuals.

C. Managing Special Situations

There are no specific regulations regarding HCV infection in daycare, school or community residential programs. HCV is not spread via casual contact or through food or water. As long as standard precautions are maintained, HCV will not be spread to others in these settings. No one who is HCV-infected should be excluded from attending or working in any of these settings on the basis of their HCV infection.

D. Preventive Measures

The role of the local health department in managing hepatitis C is largely educating infected persons how to care for themselves and avoid spreading infection to others. Little epidemiologic investigation is required except data collection for case reports. Prevention and education includes information on how the disease is transmitted, how to avoid transmitting it, and how patients can protect themselves from other potential sources of liver damage.

Offer the information and support below to newly identified case-patients.

1. Provide basic instruction on transmission of HCV and emphasize the need for ongoing medical evaluation. Treatment is available, and the case-patients should be referred to their health care provider for treatment options.

2. Educate on the need to completely abstain from alcohol to help protect the liver. If a case-patient needs or wants support to stop drinking, provide referrals to appropriate treatment or support services.
3. Discuss medications that should be avoided (*e.g.*, acetaminophen) as high doses of these can damage the liver. All case-patients should discuss any medications (including over-the-counter medications) and dietary supplements and herbs with a healthcare provider prior to taking them to be certain the medications will not impair liver function.
4. Provide information on hepatitis A and B immunization. (Refer to the Hepatitis A and B chapters in this Manual.)
5. Discuss sexual transmission of HCV. Indicate that HCV may be transmitted during sex. All contact with blood during sex should be avoided. Emphasize latex barrier protection as a way to prevent the spread of HCV, as well as being a way to prevent the exposure to and transmission of other pathogens.
6. Discuss household transmission of HCV. Household transmission is rare, but to ensure that it does not happen, the case-patient should not share razors, toothbrushes, nail clippers, or any other item that could be contaminated with blood. Inform the case-patients that they should not be restricted from working, preparing food, or taking part in their daily activities unless they have specific symptoms that make it difficult to do so. There are no recommendations suggesting that HCV-infected persons change their exercise routines or have any dietary restrictions.

ADDITIONAL INFORMATION

A *Hepatitis C Fact Sheet* can be obtained at the NJDHSS website at <http://www.state.nj.us/health>.

The following is the formal CDC case definition for acute HCV infection provided **for your information only.** CDC case definitions are used by state health departments and CDC to maintain uniform standards for national reporting. For reporting a case to the NJDHSS, always use the criteria outlined in Section 2 A. The CDC does not currently have guidelines for the reporting of non-acute hepatitis C infection.

Case definition for acute HCV infection
An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels.

Laboratory criteria for diagnosis of acute HCV infection
- Positive HCV antibody test verified with a supplemental test (*e.g.*, RIBA or PCR for viral RNA).
- Serum aminotransferase levels at least 2.5 times the upper limit of normal.
- Negative for IgM anti-HAV.
- Negative for IgM anti-HBc (if done) or HbsAg.

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